New Records of Miridae (Heteroptera) from New Zealand, with Descriptions of a New Genus and Four New Species.

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Abstract.

The Miridae of New Zealand are poorly known, only thirteen species having been recorded, of which three, or possibly four, are introduced. This paper adds six species, four of them new and two introduced. It is hoped to deal with other members of the family in later papers. The Miridae comprise one of the largest families of the Heteroptera, and it seems likely that many more species remain to be described, although, as is the case with most other families of this sub-order, the total will probably prove low in comparison with that in other regions of similar area.

The holotype and allotype of each new species and specimens of the introduced species have been deposited in the collections of the Auckland War Memorial Museum and paratypes in the Dominion Museum, Wellington.

In all proportionate measurements, 1 unit = 0.025 mm.

ACKNOWLEDGMENT.

The writer is greatly indebted to Dr. W. E. China, of the British Museum (Natural History), for the identification of the introduced species and for his other invaluable assistance, particularly in generic determinations, without which, work on this extensive and often difficult group would, in New Zealand, have been impossible or much more uncertain.

SUB-FAMILY MIRINAE.

Genus **CHINAMIRIS** gen. nov.

Body oval, dorsally with a covering of pale, deciduous pubescence. Head strongly declivous in front; eyes contiguous with and exserted beyond anterior margin of pronotum; vertex with complete transverse carina between eyes; antennae rather slender, with the first segment about as long as head and the second segment at least twice as long as first; rostrum reaching hind coxae. Pronotum shortly trapeziform, with prominent anterior collar; calli well developed; sides sinuate; base shallowly emarginate, exposing mesoscutum; disc without punctures but distinctly transversely rugose. Ostiolar peritreme large. Cuneus and membrane deflected, the latter mottled and with two cells. Posterior femora incrassated; tibiae with dark spines.

Genotype: *Chinamiris muehlenbeckiae* sp. nov.

Near *Poeciloscytus* Fieber, 1858, from which it can be distinguished by the form of the pronotum: disc not strongly convex and depressed in front, impunctate, transversely rugose, the rugae rather widely separated, not closely interconnected to approach a punctate condition; sides sinuate.

As a basis for future wider comparison, certain differences are noted between the male terminalia of *Chinamiris muehlenbeckiae* and of the type species of *Poeciloscytus, P. unifasciatus* (Fabricius, 1794), the only species of this genus at present available to me for study. The former is distinguished by the prominent, backwardly projecting lobe on the left margin of the terminal abdominal sternum. The left clasper is similar in size and general form in the two species (large, with the apical portion strongly curved forward and the extreme apex sharply pointed and down-bent), but in *C. muehlenbeckiae* does not have the middle portion twisted and flattened, nor is there a prominent subapical dilation.

Chinamiris muehlenbeckiae sp. nov., figs. 1, 2.

Length, 4.4 mm. Width across hemelytra, 2.0 mm. Rather broadly oval. Head, pronotum, scutellum, and hemelytra except for membrane clothed with a mixture of short, fine, recumbent, dark hairs and pale, deciduous, scale-like hairs; ventral surface with pale pubescence. Ostiolar peritreme large, pale.

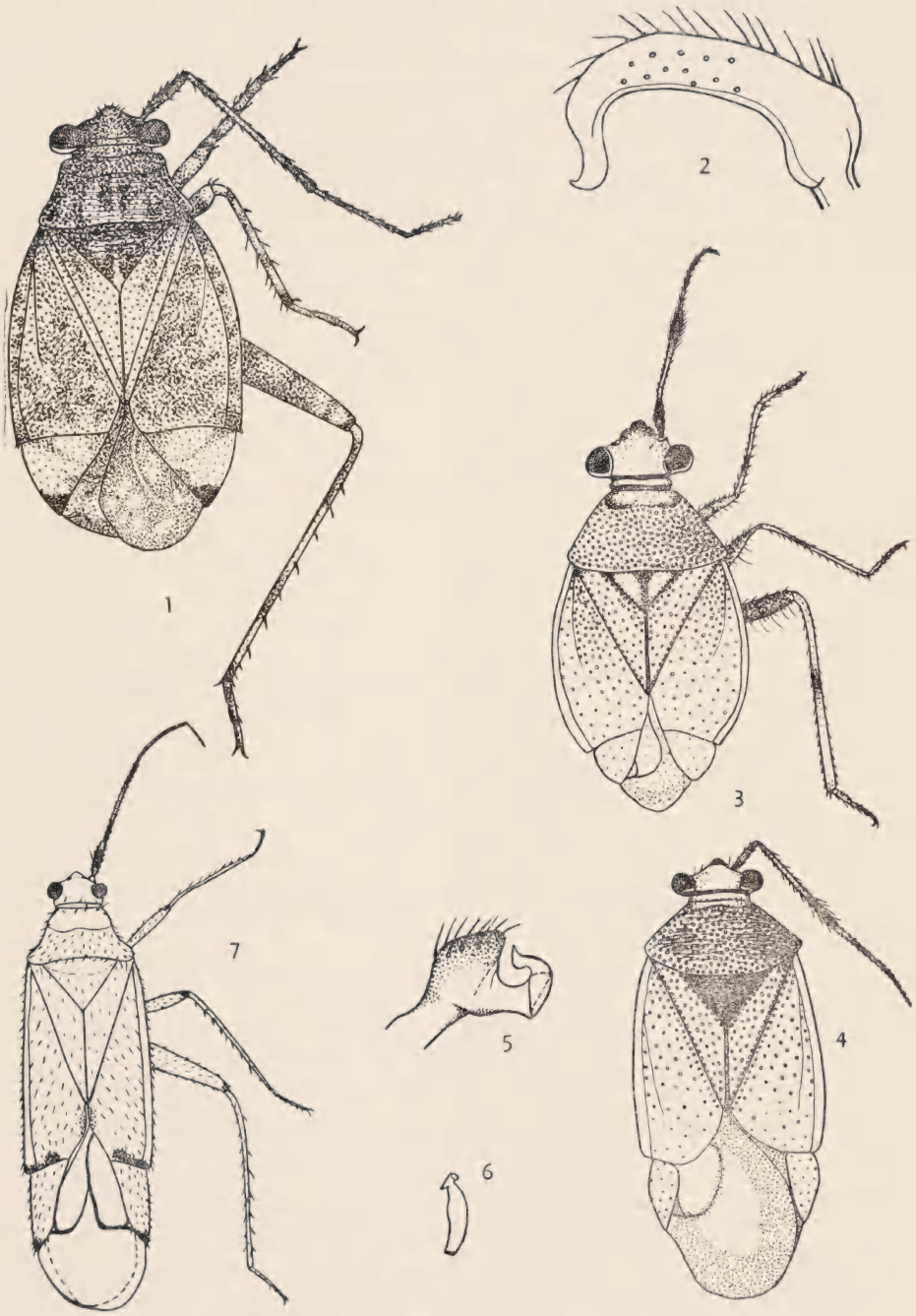
Colour: Dark brown, ground-colour testaceous heavily infuscated with black or brownish black mottlings. On vertex, pronotum, and scutellum a more or less defined narrow, median, pale testaceous line; mesial part of pronotal disc mostly testaceous, lateral regions mostly brownish black.

Head: Vertex behind nearly flat between eyes, with a prominent, rounded, posterior carina extending the whole width between the eyes. Head in front slightly convex, declivous, with the dark hairs suberect. Tylus strongly convex. Jugum pale at upper and lower margins, black in middle. Lorum with two pale spots near anterior margin. Bucculae pale except at base. Eyes large, brown or brownish black, narrowly margined with pale testaceous; touching pronotum and extending beyond its anterior angles; from above, each eye nearly $\frac{3}{4}$ as wide as interocular space (13.5: 19). Rostrum reaching hind coxae.

Antennae: Nearly as long as whole body (169: 176). First segment cylindrical, moderately thickened, fuscous, clothed with very short, fine, dark bristles, length twice width of an eye and almost equal to width of collar; other segments finely pubescent; second segment testaceous, infuscated for about apical third and usually also shortly near base, extreme base pale; third and fourth segments fuscous. Proportionate lengths of segments I-IV in male, 27: 68: 42: 32 (in female segment II is somewhat shorter (62).

Prothorax: Collar well defined, posteror margin convex; longest in middle, where it is nearly $\frac{1}{5}$ total length of pronotum (6: 31). Pronotum short; sides sinuate; calli well developed, confluent in middle;

disc behind calli only moderately convex, impunctate, transversely rugose; posterior angles rounded, dark; base very shallowly emarginate in middle, width 1½ times width across anterior rounded angles behind collar, twice width of collar, twice total median length, and ⅓ as wide



Figs. 1-2. *Chinamiris muehlenbeckiae* sp. nov. 1, ♂; 2, left clasper of ♂.

Figs. 3-6. *Deraeocoris maoricus* sp. nov. 3,♀; 4, ♂; 5, left clasper; 6, right clasper.
Fig. 7. *Engytatus nicotianae* (Koningsberger), ♀.

again as head across eyes (60 : 40 : 30 : 31 : 46). Xyphus and propleura pale-margined.

Scutellum: Convex, transversely rugose, anterior region completely or mottled with testaceous, posterior region darker except for pale median line and pale apex. Mesoscutum exposed.

Hemelytra: Mottled testaceous and fuscous. Costal margin broadly convex, nearly straight in middle, incurving near base and apex. Clavus and membrane declivous. Clavus pale, almost colourless to light amber, with apical and inner angles black and basal margin more or less distinctly reddish; towards inner margin more or less invaded by darker mottlings. Outer margins of corium and cuneus in ratio 80 : 28. Membrane fuscous, large cell black, all with pale mottlings; veins pale.

Legs: Trochanters pale. Coxae and femora dark brown to black with pale mottlings. Tibiae with suberect dark spines; pale with four dark bands, the narrow, subbasal band often not clearly separated from the second in the hind tibiae; fourth band apical. Tarsi fuscous, black at apex.

Male Terminalia: From the left-hand postero-lateral margin of the terminal abdominal sternum there projects backwards above the base of the left clasper, but distinct from it, a prominent lobe, conical or nearly cylindrical in form and with the apex somewhat narrowed and bluntly rounded. The corresponding process on the right side is a very much smaller, inconspicuous, subtriangular lobe, marked off ventrally by a notch in the sternal margin. Left clasper large, wide at base; proximal $\frac{2}{3}$ stout, broadly curved, but not twisted or flattened; apical third narrowed and tapering, strongly curved forward, with extreme apex finely pointed. Right clasper small.

Localities: Holotype ♂, allotype ♀, paratypes: 2 ♂♂, 2 ♀♀, 17 other ♂♂ and 19 other ♀♀, collected at Foxton, Manawatu, North Island, 8/1/50; 2 ♂♂, 1 ♀ at Paiaka, Manawatu, 5/1/50: all by beating *Muehlenbeckia australis* Meissn., from which also a series of nymphs was obtained.

SUB-FAMILY DERAEOCORINAE

Genus **DERAEOCORIS** Kirschbaum.

Deraeocoris Kirschbaum, 1855, *Jahrb. Ver. naturk. Nassau*, 10. Distant, 1904. *Fauna Brit. India, Rhynch.*, 2, 466.

Capsus Fieber, 1858, *Wien. ent. Monat.*, 2, 307, not of Fabricius, 1803.

Macrocapsus Reuter, 1875, *Petites Nouv. ent.*, 1 (137), 547. 1879, *Ofvers. Finska Vetensk.-Soc. Forh.*, 21, 55.

Type: *Cimex olivaceus* Fabricius, 1776, = *Capsus medius Kirschbaum*, 1855, fixed by Distant.

Deraeocoris maoricus sp. nov., figs. 3-6.

Female: Broadly oval. Length, 3.2 mm. Width across hemelytra, 1.9 mm. Dorsal surface shining, strongly convex, almost entirely bare. Brownish black, with legs yellowish brown.

Head: Impunctate; markedly declivous in front. Width across eyes a little greater than length to apex of tylus (37: 33). Eyes brownish black. From above, each eye slightly less than $\frac{2}{3}$ as wide as interocular space (10: 17). Vertex ochreous between eyes; posterior transverse carina, tylus, juga, and lorum black. Tylus and juga with sparse, fine hairs; tylus strongly convex, juga short, convex. Bucculae not prominent. Rostrum reaching to hind coxae.

Antennae: $\frac{3}{4}$ as long as whole body (99: 130) and $\frac{2}{3}$ as long again as posterior width of pronotum (99: 60); clothed with fine, suberect hairs. First segment somewhat swollen, black; second segment ochreous in middle, black at each end, the dark apical portion notably dilated; third and fourth segments black, with base of third ochreous; proportionate lengths of segments I-IV, 16: 42: 27: 14.

Pronotum: Disc moderately and fairly evenly convex, ochreous, with brownish black infuscations and coarse black punctures; calli and anterior collar impunctate; calli prominent, confluent; collar pale ochreous, narrowly margined with black; sides nearly straight; base broadly convex, only very slightly sinuate; width at basal angles $2\frac{1}{2}$ times that across collar and rather less than twice length, including collar (60: 24: 34).

Scutellum: Only slightly convex and moderately raised, impunctate, with very fine transverse rugulae; ochreous, with apex and often more or less of median region dark, the dark area sometimes almost covering disc.

Hemelytra: Strongly convex, with cuneus and membrane strongly depressed; costal margins broadly convex; clavus with coarse, dark punctures; corium with rather finer punctures set more widely apart; cuneus very finely and sparsely punctate; clavus ochreous with margins narrowly or widely dark; corium blackish brown, often with more or less of costal and claval borders ochreous; cuneus brownish black; membrane small, infuscate towards apical border, length (from apex of clavus to apex of membrane): greatest width :: 46: 31; veins dark brown; length of costal margins of corium and cuneus, 66: 20.

Legs: Slender; yellowish brown, femora, apex of tarsi, and band near middle of tibiae darker; fore coxae ochreous, mid and hind coxae brownish black. Clothed with very short hairs; spines of tibiae inconspicuous, very fine and short; femora with a few very long and slender pale erect hairs on posterior margin.

Abdomen: Venter shining brownish black, impunctate, finely pubescent.

Male: There is a marked sexual dimorphism, the ♂ differing from the ♀ in the following respects:

Elongate oval, only moderately convex above. Length, 4 mm. Width, 1.7 mm.

Head: Width of head, interocular space, and eye in ratio 34.5: 16.5: 9.

Antennae: $\frac{2}{3}$ as long as body (105: 160) and $\frac{3}{4}$ as long again as posterior width of pronotum (105: 59). First segment ochreous in middle, black at base and apex, with ochreous region almost obscured in dark specimens. Second segment longer than in ♀ and with basal black region shorter; slightly thickened towards apex, more gradually so than in ♀. Length of segments I-IV, 16: 46: 27: 16.

Pronotum: Colour as in ♀, except that disc and calli are often largely black; convexity between basal angles and declivity behind it usually more pronounced than in ♀; posterior width, width of collar, length, in ratio 59: 22: 36.

Scutellum: Entirely brownish black or black in all specimens seen; rugulae more pronounced than in ♀.

Hemelytra: Only moderately convex, with cuneus and membrane scarcely depressed; extending well beyond apex of abdomen; clavus black; corium and cuneus more or less uniformly dark brown; incision at claval suture more obvious than in ♀; costal margins only weakly and gradually convex; corium and cuneus much longer than in ♀, their costal margins in ratio 80: 30; membrane large, length (measured as in ♀) to greatest width, 50: 80, apical infuscation altogether more pronounced than in ♀, being both darker and much broader, extending as a wide brown band around entire margin except for a narrow pale strip next to apex of cuneus, and leaving a large central area and the main cell clear; veins brown, margined by an infuscated zone of membrane.

Legs: Femora lighter than in ♀, often with a reddish brown tinge.

Genitalia: Left clasper with basal lobe black, conical; apical process rather long and slender, curving first upwards and to right and then forwards and to left, apex finely pointed. Right clasper very small.

Close to *D. birói* Poppius, 1915 (from New Guinea), but differing in the impunctate scutellum, the colour of the antennae, the longer hemelytra of the ♂, with the large, clear central area of the membrane.

Localities: Holotype ♀, allotype ♂, Botanical Reserve, Nelson, 11/12/49. Paratypes: Auckland, 22/5/49 (♂), 13/3/49 (♀). Others: Nelson, 10-11/12/49 (9 ♂♂, 1 ♀); Auckland, 22/12/38 (4 ♀♀), 25/10/44 (1 ♀), 13/3/49 (3 ♀♀), 18/3/50 (1 ♀); Paihia, Bay of Islands, North Auckland, 10/2/49 (2 ♀♀).

SUB-FAMILY MACROLOPHINAE (DICYPHINAE).

Genus ENGYTATUS Reuter.

Engytatus Reuter, 1876, *Ofvers. Kongl. Vetensk.-Akad. Forh.*, 32 (9), 82. 1910, *Act. Soc. Sci. Fenn.*, 37 (1), 151. *Cyrtopeltis* Fieber, Reuter, 1909, *ibid.*, 36 (2), 62.

Type: *E. geniculatus* Reuter, 1876.

Engytatus nicotianae (Koningsberger), fig. 7.

Leptoterna nicotianae Koningsberger, 1903, *Mededeel's Lands Plantent.*, 64, 32, pl. 4, fig. 8. *Cyrtopeltis* (?) *nicotianae* Kirkaldy, 1908, *Proc. Linn. Soc. N.S. Wales*, 33, 377 (as new species). *?Dicyphus tabaci* Froggatt, 1920, *Agri. Gaz. N.S. Wales*, 31, 715-716 (possible synonym; description very brief). *Dicyphus nicotianae* (Konings.) Fulmek,

1925, *Deli Proefstat., Bull.* 25, 2, not of Horvath, 1922. *Engytatus tennis* Reuter, China, 1938 *(partim), Ann. Mag. nat. Hist.* (11) 1, 604-607. *Engytatus nicotianae* (Konings.) Usinger, 1946, *B. P. Bishop Mus., Bull.* 189, 72-74, fig. 17.

This species, described from Java, has a wide distribution—the Malay Archipelago, Australia, the Pacific (Guam, New Caledonia, Fiji). Its presence in New Zealand is of interest as a potential pest of tobacco, apparently a preferred host, and perhaps of other solanaceous species. Owing to the mainly tropical distribution of this Mirid, there is the possibility that heavier infestations may be looked for on plants growing under glass.

Dr. W. E. China states (*in litt.*) that this species is probably generically distinct from the genotype *E. geniculatus* Reuter.

The following redescription was made from New Zealand specimens:—

Male: Elongate oblong. Length, 3.7-4.0 mm. Width, 1.1 mm. It appears that there may be local variations in size. Usinger (1946) writes: "The length is given as 4 mm. in the original description, whereas my series is uniformly about 3.5 mm." Clothed dorsally with short, fine, dark hairs. Head, pronotum, and scutellum yellow, often with more or less of a greenish tinge.

Head: Small, subglobular, usually with a more or less well defined median dark line; frons and tylus strongly convex, the latter black at apex; eyes small, brownish black, not reaching pronotum, each $\frac{2}{3}$ as wide as interocular space (6: 9); rostrum reaching posterior end of middle coxae.

Antennae: Finely pubescent; about $\frac{3}{4}$ as long as body (124: 160); first segment only slightly thickened, black in middle, pale at base and apex; second segment pale in middle, black at base and apex; third and fourth brown, with extreme base of third paler; proportionate lengths of segments I-IV, 15: 44: 45: 20.

Pronotum: Anterior collar sharply constricted, nearly 1-7 total median length of pronotum (3: 22); calli pronounced, convex, with disc shallowly grooved behind them; anterior margin nearly straight; sides only slightly sinuate; posterior angles broadly rounded; base deeply and widely emarginate, largely exposing mesoscutum, just over twice as wide as across collar (36: 17) and about $\frac{2}{3}$ as wide again as median length (36: 22); disc shining, remotely and very finely and shallowly punctate.

Scutellum: Disc moderately raised, smooth, with fine hairs; apex acute, black; base to length in proportion 17: 15.

Hemelytra: Extending well beyond abdomen; costal margins of corium straight, nearly parallel, almost three times length of cuneus (75: 26); corium and clavus pale, translucent, straw-yellow; apex of corium dark-margined and with a dark spot before cuneal fracture and a smaller, less well defined dark spot just beyond apex of clavus; claval suture narrowly dark; cuneus translucent, almost colourless except for dark apex; membrane finely rugulose, colourless except for the very

narrowly infuscate margins and the veins, which are dark except towards base; outer cell very small, inner cell oblong.

Legs: Slender, pale stramineous: finely pubescent, tibiae with fine, dark spines and with a small dorsal dark spot at extreme base; tarsi brown, dark at apex.

Ventral surface: Coxae and ventral thorax shining yellow or yellowish green; abdomen green or yellow to grey, with fine, pale pubescence.

Terminalia: The left clasper and the terminal abdominal segment of the ♂ are peculiar and highly distinctive in form. The left clasper comprises a stout, curved ventral lobe from the inner margin of which, near the middle projects upwards a long, flattened, blade-like chitinous arm. The apex of the terminal abdominal segment forms a bilobed, upturned process, the apical arm of which is short and blunt and lies to the right of the ventral lobe of the left clasper, while the other arm is considerably longer, broad basally and apically curved to the left as a slender process behind the blade of the clasper and above the broad lobes of the clasper and abdomen. These structures are figured by Fulmek (1925) and Usinger (1946) (see above).

Female: Resembles ♂ except in the following respects: Head and interocular space slightly wider; eye: interocular space :: 6.25: 10. Antennae, especially second and third segments, considerably shorter (13: 31: 33: 19), and only about $\frac{5}{8}$ as long as body (96: 160). Pronotum slightly wider; width of base: width of collar: median length :: 39: 18: 22. Costal margins of corium and cuneus, 80: 26.

Localities: Paihia, Bay of Islands, N. Auckland, 20-25/3/49, 5 ♂♂, 2 ♀♀, (Dr. K. A. Cumber). Auckland, 3/49, 1 ♂, 1 ♀ (T.E.W.). Remuera, Auckland, in light trap, 25-28/1/50, 4 ♀♀, 2 ♂♂ (Mr. E. T. Giles). Determined by Dr. W. E. China.

SUB-FAMILY CYLLECORINAE (ORTHOTYLINAE).

Genus CYRTORHINUS Fieber.

Cyrtorhinus Fieber, 1858, *Wien. ent. Monatschr.*, 2, 313. *Tythus* Fieber, 1864, *ibid.*, 8, 82. *Sphyracephalus (partim)* Douglas and Scott, 1865, *Brit. Hem.*, 1, 349. *Cyrtorhinus* Reuter, 1884, *Act. Soc. Sci. Fenn.* 13, 379 (emendation). *Periscopus* Breddin, 1896, *Deutsch. ent. Zeit.*, 1896, 106 (not of Fitzinger, 1843). *Breddiniessa* Kirkaldy, 1903, *Wien. ent. Zeit.*, 22, 13 (*n.n. pro Periscopus* Breddin).

Type: *Capsus elegantulus* Meyer-Dür, 1843 = *Capsus caricis* Fallen, 1807.

Cyrtorhinus cumberi sp. nov., figs. 8, 9.

Both brachypterous and macropterous forms occur. Four ♂♂ were collected and all were macropterous. Of eleven ♀♀, ten were brachypterous and only one was macropterous, and even in this specimen the hemelytra, and particularly the membrane, were considerably shorter than in the ♂♂. It is possible that wider collection will reveal a small proportion of brachypterous ♂♂.

Named after Dr. R. A. Cumber, of the Entomological Research Station, D.S.I.R., Nelson, to whose hospitality and assistance is due the collection of this and other interesting species of Hemiptera.

Macropterous Male: Elongate, oblong. Length, 3.7 mm. Width, 1 mm. Clothed with very short, fine, pale, recumbent hairs.

Colour: Face, tylus, juga, lorae, genae, antennal bases, and anterior $\frac{3}{5}$ of pronotum, including collar, black; eyes reddish or blackish brown; vertex yellow-brown, sometimes tinged with greenish or reddish, posteriorly with a more or less well defined brick-red band, sometimes extending on to eyes, extreme posterior border black. First segment of antennae blackish brown, extreme apex pale; other segments black. Scutellum and posterior $\frac{2}{5}$ of pronotum yellow, the former sometimes more or less tinged with green, and the latter with orange. Legs yellowish brown, femora sometimes tinged with green, apex of tarsi dark. Hemelytra green; membrane transparent, iridescent, lightly infuscated with brown or grey, especially near margins; veins yellow or light brown, narrowly margined with darker brown. Abdomen yellow or green.

Head: Shining, smooth except for microsculpture of minute punctures and reticulations; face declivous and subvertical in front of eyes; the black anterior region narrowing behind and ending in an acute apex between eyes, the brown posterior region extending forward around inner margin of each eye. Eyes nearly touching and extending beyond anterior margin of pronotum; from above, each eye $\frac{2}{5}$ as wide as interocular space (8.5: 14). Tylus strongly convex; juga short, nearly flat; bucculae black, margins pale, fringed with a row of long, fine hairs. Rostrum yellowish brown, black-tipped, reaching to middle coxae.

Antennae: Slightly longer than body (160: 150); clothed with fine pubescence. First segment rather stout, slightly curved, with two long hairs on apical half of inner margin, slightly longer than pronotum (21: 20); second more slender than first, cylindrical; third and fourth more slender than second. Proportionate lengths of segments I-IV, 21: 61: 53: 25.

Pronotum: Shining; considerably widened posteriorly; with an extremely short anterior collar; sides sinuate just behind middle; base widely emarginate, largely exposing mesoscutum; anterior angles rather broadly rounded; posterior shoulders more angularly rounded, scarcely raised; anterior black region in form of large, convex callus, with surface minutely punctate-rugulose and with five shallow depressions, two on each side of mid-line and one median and posterior; posterior pale region shallowly, remotely punctate and finely rugose; across posterior angles slightly wider than head, twice as wide as collar, and $\frac{3}{4}$ as wide again as long (35: 31: 17: 20).

Scutellum: Nearly flat; disc transversely rugulose, most strongly so near base behind mesoscutum; the latter glabrous except for a single row of sparse, short, fine hairs a short distance before posterior margin; scutellar triangle, including mesoscutum, about $\frac{4}{5}$ as long as wide at base (21: 25).

Hemelytra: Well surpassing abdomen; costal margin nearly straight, slightly and gradually convex in anterior third, scarcely incised at cuneal fracture; costa and subcosta nearly parallel throughout; corium and clavus convex, shining, shallowly punctate-rugulose; claval suture deeply depressed; length of costal margins of corium and cuneus, 65 : 25; membrane well developed, extending far beyond apex of cuneus, length (from apical margin to apex of clavus) about twice greatest width (63 : 30).

Hind Wings: Well developed, passing abdomen and nearly as long as hemelytra.

Legs: Slender, with fine brown pubescence; tibiae with sparse, fine, brown spines. Usinger (1939, *Proc. Hawaii. ent. Soc.*, 10 (2), 272) points out that the genus *Cyrtorhinus* is anomalous among Mirids in the variable nature of the pretarsal processes; while some species have fully developed arolia, in others these structures are replaced by a pair of fine, parallel setae. *C. cumberi* resembles such species as *fulvus* Knight and *lividipennis* Reuter in having the large, membranous, convergent arolia characteristic of most members of the sub-family.

Terminalia: Left clasper with ochreous ventral lobe stout, curved, convex below, concave above, the rounded and somewhat narrowed apex upturned; the brown, sclerotised dorsal process coming off from dorsal surface of ventral lobe towards base, curved upwards and to right, slender, sinuous, very long, with fine apex. Venter of terminal abdominal segment produced as a broadly rounded lobe to right of left clasper. The two closely apposed genital valves projecting backwards and upwards from end of abdomen above base of left clasper. Right clasper: outer process a large, ochreous, knob-like, backwardly projecting pyriform lobe, beset with very long hairs; inner process a shorter, broad, laterally flattened, backwardly directed plate, ochreous with apical margin brownish black.

Brachypterous Female: Elongate oval. Length, 3.4-4.1 mm. Width, 1.3 mm. (The length is affected by the state of distension of the exposed abdomen.)

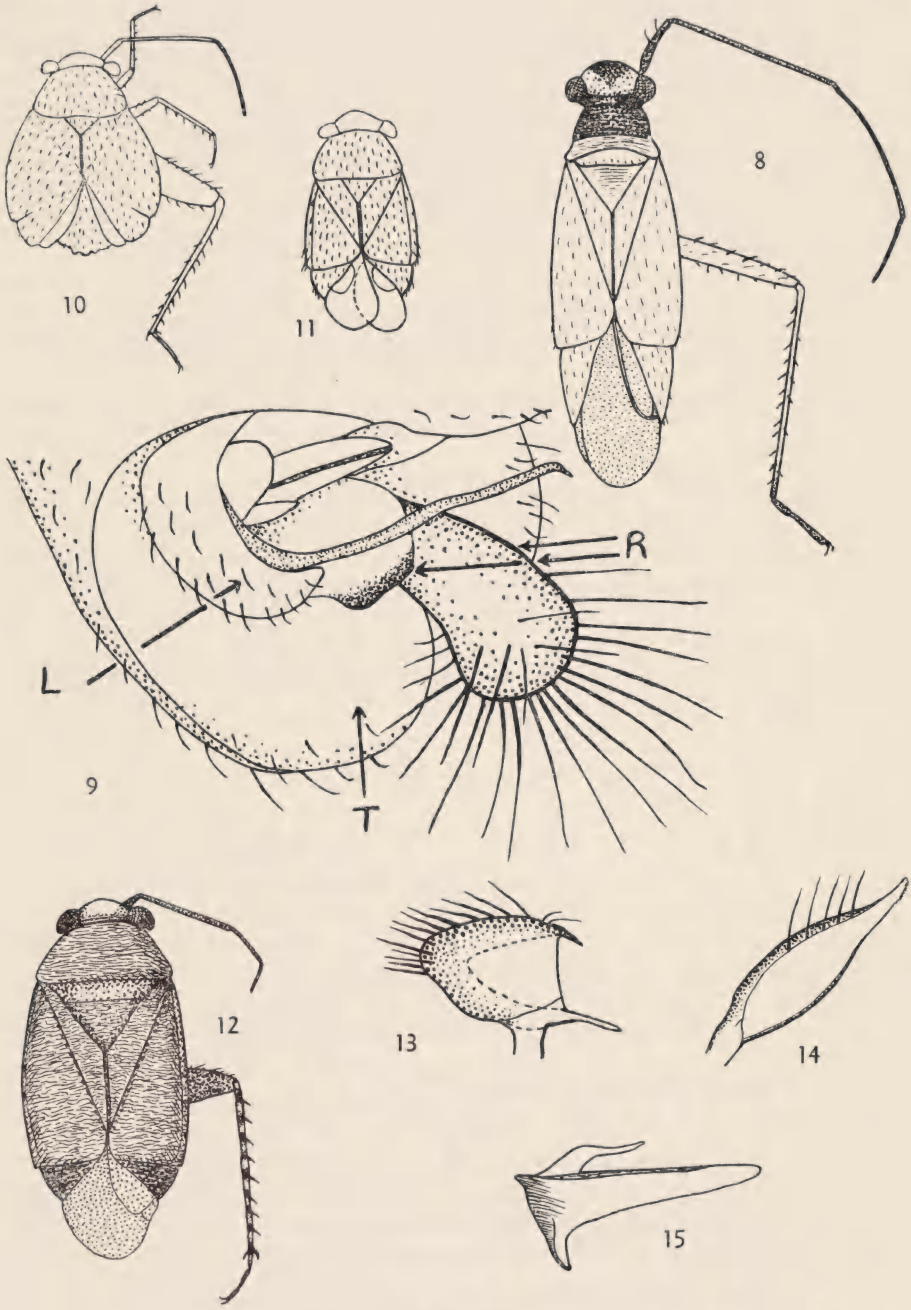
Colour: As for ♂, except that first antennal segment is reddish brown with pale apex and second segment often reddish brown in middle, with base shortly and apex longly black.

Head: Interocular space rather wider than in ♂ (eye: interocular space :: 8.5: 16).

Antennae: $\frac{7}{8}$ as long as in ♂ (140: 160) and usually shorter than body; segments I-IV, 20: 55: 43: 22.

Hemelytra: Short, leaving the last two or three complete tergites exposed; costal margin more convex than in ♂; corium above less convex than in ♂, clavus nearly flat; cuneus very short, only $\frac{1}{5}$ as long as corium (13: 65); membrane very small, not or occasionally barely extending beyond apex of cuneus, length (from apex of clavus to apex of cuneus) about three times greatest width (30: 9 or 39: 13).

Hind Wings: In form of short, rounded triangles, reaching usually less than half way along abdomen.



Figs. 8-9. *Cyrtorhinus cumberi* sp. nov. 8, macropterous ♂ ; 9, ♂ terminalia, left posterior aspect: L, left clasper; R, right clasper; T, terminal lobe of abdomen.

Figs. 10-11. *Halticus tibialis* Reuter. 10, ♀; 11, ♂.

Figs. 12-15. *Sthenarus myersi* sp. nov. 12, ♂ ; 13, left clasper; 14, right clasper, ventro-lateral aspect; 15, theca.

Macropterous Female: Length, 3.6 mm. Width, 1.3 mm. (In this form also, length will no doubt vary with state of distension of abdomen.) Head and colour of antennae as in brachypterous ♀.

Antennae: Much shorter than in ♂ and about as long as body. Segments I-IV, 20: 58: 43: 25.

Hemelytra: Reaching but not entirely covering last complete tergite. As in brachypterous ♀ except that cuneus is intermediate in length between that of macropterous ♂ and of brachypterous ♀ (corium: cuneus:: 70: 19), and membrane is larger, extending well beyond apex of cuneus (length (apical margin to apex of clavus): greatest width :: 52: 23).

Hind Wings: Longer than in brachypterous ♀, but considerably shorter than hemelytra and ending at third complete tergite from end of abdomen.

Locality: Holotype ♂, allotype ♀, 2 paratype ♂♂, 2 paratype ♀♀, 8 other ♀♀, 1 other ♂, and 9 nymphs, below and in tufts of rushes and grasses, Paiaka, Manawatu, 4/1/50.

Several species of *Cyrtorhinus* have been shown to be exclusively predacious on the eggs of leaf-hoppers, particularly Delphacids, inserted by the ♀ ♀ into the tissues of leaves and stems (*vide* Usinger, 1939, *op. cit.*, 271-273). *C. mundulus* (Breddin) has been used successfully to control the sugar-cane leaf-hopper *Perkinsiella saccharicida* Kirkaldy. Careful observations on the feeding habits of the New Zealand species would be of considerable interest. Delphacids occurred abundantly with it at the bases of the tufts of grass and rushes.

Genus **HALTICUS** Hahn.

Halticus Hahn, 1832, *Wanzenart. Ins.*, 1 (3), 113, pl. 18. *Astemma* Latreille, 1829, *in* Cuvier, *Règne Anim.*, ed. 2, 5, 199, not of Lepeletier et Serville, 1825. *Eurycephala Laporte*, 1832, *Mag. de Zool.*, 2, Suppl., 36. *Halticocoris* Douglas and Scott, 1865, *Brit. Hemipt.*, 1, 478.

China (1943, *The Generic Names of British Insects*, pt. 8, p. 268) points out that if the date of publication of *Eurycephala* Laporte can be proved to have been before November, 1832, this genus will replace *Halticus* Hahn.

Type: *Acanthia pallicornis* Fabricius, 1794 = *Cicada aptera* Linnaeus, 1764.

Halticus tibialis Reuter, figs. 10, 11.

Halticus tibialis Reuter, 1891, *Revue d'Entomologie*, 10, 135-136.

This small bug was described from Java and has since been widely recorded from tropical Africa and Asia (including Ceylon, the Carolines, Amboina and Macassar). Usinger (1946, *op. cit.* p. 86) quotes Esaki as recording it as injurious to beans in the Carolines.

The following redescription, based on New Zealand specimens, is given as an aid to identification.

Macropterous Male: Oval. Length, 2 mm. Width across hemelytra, 1 mm.

Colour: Shining black; eyes brown; vertex with a narrow pale yellow line along inner margin of eye; antennae pale yellowish brown, with apex of second segment and third and fourth segments except at

base fuscous. Legs pale yellow-brown, with claws, apex of tarsi, and all except apical quarter of the swollen hind femora black; basal half of hind tibiae more or less infuscated. Membrane of hemelytra fuscous. A certain amount of colour variation can apparently be expected. Reuter (1891) describes the rostrum except for the last segment and the apex of the femora widely as pale yellow, and Usinger (1946) describes all the femora as black except at the apex.

Head: Highly polished, nearly glabrous, minutely rugulose-punctate; downwardly flexed, so that little of its length is visible from dorsal aspect; almost as long to apex of tylus as wide across eyes (25: 26); carinate posterior margin slightly overlapping front of pronotum; width across eyes: posterior width of pronotum :: 26: 30. Eyes prominent, with greatest length set vertically; contiguous to pronotum and extending beyond its anterior angles; from above, each eye just over $\frac{1}{3}$ as wide as interocular space (5.5: 15). Tylus convex. Rostrum stout, reddish brown, reaching or just surpassing posterior margin of hind coxae.

Antennae: Slender, three times as long as posterior width of pronotum; first segment somewhat swollen, not reaching apex of head, with two long, erect hairs in apical third; other segments slender, cylindrical, clothed with short, stiff hairs; second segment slightly longer than costal margin of corium (35: 33); proportionate lengths of segments I-III, 9: 35: 25.

Pronotum: Short, trapeziform, weakly convex, shortly and gently declivous towards base; disc minutely and shallowly punctured, obscurely transversely rugulose; sides straight; posterior angles broadly rounded; base only slightly emarginate; about $\frac{2}{3}$ as wide across anterior angles as across posterior (22: 30); posterior width twice median length.

Pronotum and hemelytra except membrane with rather sparse, golden, deciduous pubescence.

Scutellum: Small, scarcely raised, obscurely transversely rugulose, minutely and sparsely punctate; rather less than twice as wide at base as long (12: 7).

Hemelytra: Corium and clavus convex; claval suture deep; costal margin moderately convex, deeply incised at base and apex of cuneus; membrane well developed, extending well beyond abdomen, with cell complete, veins wide, narrowly dark-margined; cuneus and membrane strongly deflexed; costal margin of cuneus slightly more than $\frac{1}{3}$ that of corium (12: 33).

Legs: Clothed with fine, short hairs; hind tibiae with dark, erect spines.

The short- and long-winged forms in this genus differ strikingly. In general appearance the brachypterous forms superficially resemble the small "flea-beetles" (Halticidae).

Brachypterous Female: Shortly oval; dorsal surface broadly convex. Length, 1.75 mm. Width, 1.25 mm. Width across eyes: posterior width of pronotum :: 29: 32. From above, eye well over $\frac{1}{3}$ as wide as interocular space (6.5: 16). Antennae less than three times as long as posterior width of pronotum; second segment shorter than in ♂, barely $\frac{3}{4}$ length of costal margin of corium (29: 40). Width across anterior angles of pronotum just over $\frac{2}{3}$ that across posterior angles

(23: 32). Pronotum not declivous along base. Hemelytra broadly and evenly convex; clavus very small, claval suture inconspicuous, not depressed; costal margin of corium strongly and widely convex; cuneus and membrane not deflexed; margin of cuneus marked off anteriorly by angular incision but posteriorly by a gradual convexity; costal margin of cuneus only $\frac{1}{4}$ that of corium (10: 40); membrane very small, fuscous, without cells, projecting only shortly beyond cuneus and not passing end of abdomen.

Localities: 1 macropterous ♂, 1 brachypterous ♀, Russell, Bay of Islands, N. Auckland, 14/2/49. 1 macropterous ♂, Paihia, Bay of Islands, 13/2/49. Determined by Dr. W. E. China.

SUB-FAMILY PLAGIOGNATHINAE (PHYLINAE).

Genus **Sthenarus** Fieber.

Sthenarus Fieber, 1858, *Wien. ent. Monatschr.*, 2, 321. Kirkaldy, 1906, *Trans. Amer. ent. Soc.*, 32, 123. *Phocnicocoris* Reuter, 1875, *Bih. svenska Vetens-Akad. Forh.*, 3 (1), 55.

Type: *Capsus rottermundi* Scholtz, 1846, fixed by Kirkaldy.

Sthenarus myersi sp. nov., figs. 12-15.

Male: Oblong oval. Length, 3 mm. Width, 1.3 mm. Dorsal surface and thorax at sides clothed with fine, pale, deciduous hairs, easily rubbed off. Ventral surface finely pubescent.

Colour: Black. Eyes black or reddish black. Rostrum except at apex, clavus at extreme apex, trochanters, femora at extreme apex, ventral margin of fore and mid femora, tibiae, second segment of tarsus, and claws ochreous; tibiae with extreme apex black, and banded with conspicuous black spots.

Head: Strongly declivous; face subvertical. Vertex nearly flat, shining, with microsculpture of minute, close punctures. Juga short, flat; tylus scarcely raised above them. A complete, rounded posterior carina between eyes, with a single very fine hair on each side a short distance from eye. Eyes touching and extending beyond sides of anterior margin of pronotum; from above, each just over half as wide as interocular space (8: 15). In front view, head $\frac{2}{3}$ as long (to apex of tylus) as wide across eyes (21: 31). Rostrum reaching to hind coxae.

Antennae: Black, very short, first segment appearing extremely short from above, owing to flexion of head. Clothed with dark pubescence; two bristles set close together at $\frac{1}{3}$ from apex. Relative length of segments I and II, 9: 36.

Pronotum: Short trapeziform; sides straight; anterior margin nearly straight, very slightly convex, with an extremely short, unsculptured anterior rim, set slightly below surface of disc; posterior margin nearly straight; anterior and posterior angles rounded. Disc only moderately convex, transversely rugulose and with microsculpture of minute punctures. Length about equal to width across anterior angles and $\frac{1}{2}$ width at base (24: 49).

Scutellum: Nearly flat. Sculpture as for pronotum; the exposed mesoscutum with micropunctures only. Basal width to length: scutellum only, 23:19; with mesoscutum, 30: 23.

Hemelytra: Punctate-rugulose. Well surpassing abdomen; cuneus and membrane deflexed. Costal margin of corium slightly convex, three times as long as that of cuneus (60: 20) and equal in length to posterior tibiae. Membrane black, a small pale ochreous spot at anterior end of vein and another at its posterior margin.

Legs: Hind femora very broad, somewhat flattened and curved; tibiae with fine ochreous setae arising from the black spots.

Genitalia: The ♂ claspers in the Plagiognathinae are very small, but a preliminary study of five genera indicates that they may be used, when necessary, as good taxonomic characters, showing both generic and specific distinctions. In *S. myersi* the left clasper is short, black, and subconical, with the outer surface convex and the inner concave; its lateral spines unequal, one short, thorn-like, the other much longer, only slightly curved, with the apical half much narrowed. Right clasper glume-like; basal $\frac{2}{3}$ wide, concavo-convex, distal $\frac{1}{3}$ narrowed and prolonged as an awn-like process. Theca with a slender acessory spine, bent basally and thereafter nearly straight and parallel with main spine, reaching about $\frac{1}{2}$ way to its apex. (In this subfamily the theca (aedeagal sheath) is a prominent, dark, spine-like process with the outer margin at its base attached to the abdomen just in front of, but separate from, the right clasper, and is directed backwards and to the left. It is hollowed or grooved along its inner side to ensheath the aedeagus, and fits against the concave surface of the left clasper, the two spines of which embrace it. Both claspers with conspicuous basal peg inserted into abdomen.)

Female: Similar to ♂, except in the following particulars. Length, 3.1 mm. Rather broader across hemelytra (1.5 mm).

Colour: Rather lighter above; dark brownish black. Base and posterior angles of pronotum narrowly margined with ochreous. Antennae with basal $\frac{2}{3}$ of second segment and extreme apex of fourth ochreous. Clavus tinged with reddish brown. Membrane fuscous, usually with veins paler and with pale spot behind cuneus.

Antennae: Second segment slightly shorter than in ♂. Segments I-IV, 9: 33: 14.5: 11.75.

Localities: 2 ♂♂, 2 ♀♀, Foxton, Manawatu, 8/1/50, beating *Muehlenbeckia australis*. 1 ♂, 1 ♀, Te Paki, North Auckland, 21/1/50, *Leptospermum*. 6 ♀♀, Ngakengo Bay, North Auckland, 27/1/50, *Leptospermum*.

The specimens from the far North are consistently smaller than those from the Manawatu, described above, and the ♀ ♀ are lighter in colour, with a distinctly reddish brown tinge, especially on head, pronotum, scutellum, cuneus, and anterior parts of corium and clavus (the pronotum and clavus of one only are black). Length: ♂, 2.5 mm.; ♀, 2.6mm.-2.7 mm. Width: ♂, 1.3 mm.; ♀, 1.4 mm. Other dimensions in proportion, e.g., in ♂, width of eye: interocular space :: 7.5 :14; head, length: width :: 19: 29; length of corium: cuneus :: 54: 18; pronotum, length: width at base, :: 21: 43 (in ♀, 21.5: 44). All structural features, including the ♂ genitalia, are similar, and it is not proposed, on the basis of the present material, to suggest subspecific categories.

This species is named after the late Mr. J. G. Myers, who added a great deal to our knowledge of the New Zealand Hemiptera.